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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,887	10/22/2001	Gunnar Flentje		7527

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EXAMINER

JACOBSON, TONY M

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/982,887

Applicant(s)

FLENTJE, GUNNAR

Examiner

Tony M. Jacobson

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 . 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the controller having an infinite amount of tap positions and an infinite plurality of contacts respectively coupled to the infinite multiple tap positions along a continuously-tapped coil must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: Applicant's attention is called to an apparent typographical error at page 11, line 19 of the specification ("network. because").

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 4, 5, 11, 12, 17, and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

5. Claims 4, 11, and 17 recite "said controller having infinite multiple positions corresponding to an infinite amount of tap positions along said continuously tapped coil". Although it may be said that a Variac controller (as disclosed in Applicant's specification) has infinite multiple positions; in a conventional Variac, these infinite positions do not correspond to an infinite number of tap positions, but a finite number of tap positions where a wiper contact slides along the edge of an arcuate coil, progressively making contact with each succeeding turn or group of turns of the coil. If Applicant has invented a new type of Variac with an infinite number of tap positions, it must be disclosed in such a way as to enable one of ordinary skill in the art to make and use the invention.

6. Claims 5, 12, and 18 recite "wherein said controller has an infinite plurality of contacts, respectively coupled to the infinite multiple tap positions along said continuously tapped coil". Applicant has not disclosed a controller having an infinite plurality of contacts in such a way as to enable one of ordinary skill in the art to make and use the invention.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 4 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 4 recites the limitation "said first and second parts of said variable frequency-sensitive second impedance means" in lines 11-13 of the claim. There is insufficient antecedent basis for this limitation in the claim. Neither claim 4 nor claim 1 upon which it depends make any prior mention of first and second parts of the variable frequency-sensitive second impedance means.

10. Claim 7 recites the limitation "said second variable frequency-sensitive impedance means" in lines 2-3 of the claim. There is insufficient antecedent basis for this limitation in the claim. Neither claim 7 nor claim 1 make any prior mention of a second variable frequency-sensitive impedance means. For examination purposes, it

will be assumed that Applicant intended to recite "said variable frequency-sensitive second impedance means".

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-3, 6-10, 13-16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scholz (US 4,363,934) in view of Lowell (US 5,054,076).

13. Regarding claims 1, 8, and 14, Scholz discloses in Fig. 1, a volume control apparatus associated with an electronic musical instrument amplifier and a speaker (column 1, lines 5-23), the associated musical instrument amplifier would inherently comprise a preamplifier section having an input and at least one amplifier stage coupled to the input, whereby the amplifier stage amplifies audio signals received through the input; a power amplifier section having an output and at least one output stage coupled to the pre-amplifier section to receive the amplified audio signals, whereby a loudspeaker connected to the output can be operated, as is conventional for musical instrument amplifiers. The amplifier further comprises a power attenuation circuit interposed between the power amplifier output and loudspeaker for controlling the

volume output level from the speaker while maintaining substantially constant distortion from the amplifier (column 1, lines 7-9), constant proportional quality of high frequencies in applied sound signals (inherently), and the input impedance of the power attenuation circuit, with the speaker coupled therewith, within a constant impedance range near a predetermined impedance (column 6, line 20 –column 7, line 5), said circuit comprising input terminal means for receiving an output signal from the power amplifier, first impedance means (RB) coupled in series with the speaker, second impedance means including variable impedance means adapted to be manually settable to control volume output level from the speaker and having a variable impedance means output node, means coupling the second impedance means in parallel with the series connection of the first impedance means and the speaker impedance, and means coupling the variable impedance output node to a junction point between the series connection of the first impedance means and the speaker impedance. Schulz does not disclose that the second impedance means is frequency sensitive. Scholz discloses at column 1, lines 35-47 that a problem with prior art volume control circuits is that in a maximum volume position, there is still a power loss due to the resistive voltage divider being coupled in parallel with the speaker, and as a solution, discloses in Fig. 2 and at column 3, line 57 –column 4, line 36, a bypass switch (S1) that, in a "MAX" position, bypasses the resistive voltage divider to direct maximum power to the loudspeaker. Transformers (including autotransformers) were well known in the art at the time the present invention was made as an alternative to resistive voltage dividers for producing a reduced-voltage output signal from a given input signal without the power loss that would occur in a

resistive voltage divider. It was also well known in the art that in operation, tube amplifiers require a load impedance near a design value to prevent damage to output circuitry, particularly at high output levels. Scholz discloses at column 3, lines 48-50 that the primary purpose of resistor (RB) is to maintain the input impedance at a relatively constant value as the attenuation factor is varied. Lowell discloses in Fig. 2, a similar loudspeaker volume control, without the first impedance means (RB) of Scholz and employing frequency-sensitive means (an autotransformer) with a variable frequency-sensitive impedance means output node. It would have been obvious to one of ordinary skill in the art at the time the present invention was made to substitute the autotransformer of Lowell for the resistive voltage divider of Scholz in order to provide a volume control that operates efficiently when the output level is set to a maximum level without requiring a separate bypass switch, while maintaining a relatively-constant load impedance when the output level is being attenuated. Further regarding claims 1 and 14, it would have been obvious to one of ordinary skill in the art to incorporate the volume control of Schulz, modified according to the teachings of Lowell, into a musical instrument amplifier, such as a "combo" amp or into an individual loudspeaker enclosure for use with a separate musical instrument amplifier.

14. Regarding claims 2, 9, and 15, in the volume control circuit of Schulz, modified according to the teachings of Lowell as described above regarding claims 1, 8, and 14, the first impedance means (RB) is a fixed resistor coupled in series with the speaker impedance.

15. Regarding claims 3, 10, and 16, one of ordinary skill in the art at the time the present invention was made would have recognized that at high levels of input power and high attenuation factors, the first impedance means (RB) in the volume control circuit of Schulz, modified according to the teachings of Lowell as described above regarding claims 1, 8, and 14, would be required to dissipate up to a hundred watts or more of power. Official notice is taken that at the time the present invention was made, it was well known in the electronics arts to provide fixed resistors that are expected to dissipate high levels of power with heat sinks to extract and convey heat from the resistor device to prevent the resistor from being damaged by excessive temperatures. It would have been obvious to one of ordinary skill in the art at the time the present invention was made to mount the fixed resistor (RB) onto (or in) a heat sink to prevent damage due to overheating of the resistor.

16. Regarding claims 6, 13, and 19, in the volume control of Scholz, modified according to the teachings of Lowell as described above regarding claims 1, 8, and 14, the first impedance means, speaker impedance, and second impedance means form a ladder network with said second impedance means having complimentary variable frequency-sensitive impedance sections. (See Scholz, column 3, lines 34-47.)

17. Regarding claim 7, in the volume control of Scholz, modified according to the teachings of Lowell as described above regarding claims 1, 8, and 14, the variable frequency-sensitive second impedance means includes a first part (the portion of the autotransformer above whatever tap is selected by switch 20 of Schulz) and a second part (the portion of the autotransformer below the selected tap) adapted to be manually settable in a complimentary manner to control the output level from the speaker; further including control means (20A of Schulz) to determine the relationship of the first and second parts, the control means being connected to a junction point between the series connection of the first impedance means and the speaker impedance. The first part of the variable frequency-sensitive second impedance means is coupled in parallel with the first impedance means, and the second part of the variable frequency-sensitive second impedance means is coupled in parallel with the speaker.

18. Claims 4, 5, 11, 12, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scholz (US 4,363,934) in view of Lowell (US 5,054,076) as applied to claims 1, 8, and 14 above, and further in view of Gonzalez (Reference U).

19. Regarding claims 4, 11, and 17, in the volume control of Scholz, modified according to the teachings of Lowell as described above regarding claims 1, 8, and 14, the variable frequency-sensitive second impedance means includes a coil with a plurality of tap positions selectable by means of a switch. Scholz discloses at column 1, lines 40-65, prior art configurations that use large potentiometers (continuously-variable voltage dividers), citing problems due to reliability and high levels of power dissipation, requiring physically large devices. Neither Schulz nor Lowell disclose a continuously-tapped coil with a controller having infinite multiple positions corresponding to an infinite amount of tap positions along the continuously-tapped coil to define the first and second parts of the variable frequency-sensitive second impedance means. Gonzalez discloses using a Variac (a continuously-tapped autotransformer coil having a variable controller with a control knob connected to it, said controller having infinite multiple positions corresponding to an infinite amount of tap positions along the continuously-tapped coil to define first and second parts of a variable frequency-sensitive means) with a tube amplifier as an infinite-tap output transformer by connecting the Variac between the output transformer (the normal speaker output terminal) of the tube amplifier and a loudspeaker. It would have been obvious to one of ordinary skill in the art at the time the present invention was made to substitute the continuously-tapped

Variac autotransformer of Gonzalez for the discretely-tapped autotransformer of Lowell in the modified volume control circuit of Scholz in order to provide a volume control circuit that is adjustable to any desired output attenuation level.

20. Regarding claims 5, 12, and 18, in the volume control circuit of Schulz, modified according to the teachings of Lowell and Gonzalez as described above regarding claims 4, 11, and 17, the controller comprises a finite plurality contacts coupled to a plurality of tap positions along the continuously-taped coil (An infinite plurality of contacts is not enabled by Applicant's disclosure. See 35 USC § 112, first paragraph rejection of these claims, above.), and a contact defining a variable frequency-sensitive impedance output node, said contact being coupled to said junction point between the series connection of the first impedance means and the speaker impedance, whereby a first part of the variable frequency-sensitive second impedance means is coupled in parallel with the first impedance means and a second part of the variable frequency-sensitive second impedance means is coupled in parallel with the speaker.

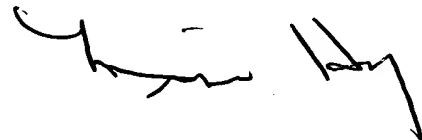
Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
22. Hennessy (US 6,125,188) discloses a compact personal monitor system for performing musicians, which provides a reduced volume output by means of a variably tapped coil.
23. Six (US 1,990,099) discloses a volume control for use in audio distribution system, which uses a resistive voltage divider in one embodiment and an autotransformer in another embodiment.
24. Guzskie et al. (US 3,033,930) and Doran (US 1,883,624) disclose volume control circuits using a resistive voltage divider, which attempt to maintain a constant load impedance to the source.
25. Hoffman (Reference V) provides an overview of general information on power attenuators for guitar amplifiers, discussing and illustrating a number of commercially available products.
26. Hoffmann (Reference W) provides a copy of an earlier USENET posting to alt.guitar.amps discussing a particular attenuator circuit and factors such as reactive (frequency-sensitive) loading versus resistive loading.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony M. Jacobson whose telephone number is (703) 305-5532. The examiner can normally be reached on Mon. -Fri. 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.



**MINSUN OH HARVEY
PRIMARY EXAMINER**

tmj
December 1, 2003